Underemployment in the Netherlands: How the Dutch 'poldermodel' failed to close the education–jobs gap

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Som Theme A: Primary Processes

Abstract
Although the populations of the richest advanced industrial societies have achieved unprecedented levels of formal credentials, analysts report on the massive scale of underutilisation of knowledge and skills in current market economies. This paper describes the underemployment situation in the Netherlands (1977-1995). We show by different methods that the 'education-jobs gap' has increasingly widened. Although the statistical association between employees' level of education and their jobs remained stable over time, employees' return to credentials has diminished for every educational category. Within the total labour population, an increasing share of employees can be considered underemployed and suffering from credential inflation. At the lower levels of education men have suffered from underemployment and credential inflation more than women. At the higher levels of education it is the reverse. It also appears that young people deal with a 'waiting room effect': they enter the labour market at relatively low skill levels, given their educational level and gender. A further breakdown of the return on credentials by educational specialisation shows that employees with an educational background in health care or technical studies have suffered relatively more from credential inflation than those in commercial education. We conclude by stating that in spite of much rhetoric about the skill deficiencies of the current workforce, the lack of decent jobs has caused basic allocation problems in the Dutch labour market. From a human resources perspective the growing wastage of employees' potential should not be underestimated or dismissed. We argue that an effective allocation of knowledge and skills to occupations will be the basic tenet of new forms of work organisation.

Introduction

The 'post-industrial economy', 'the knowledge-based, high-skill economy' and 'knowledge-creating companies' are buzzwords in the nineties that have already become a common article of faith in the public debate. Although the populations of the richest advanced industrial societies have achieved unprecedented levels of formal credentials, analysts report on the massive scale of the underutilisation of knowledge and skills in current market economies (Kasarda 1990). In spite of the growing body of evidence on the waste of education and knowledge in the workplace this underemployment is hardly acknowledged in the political arena or among managers. Recently, Livingstone (1998) added new input to the discussion by empirically showing the 'education-jobs gap' for the US and Canada. This gap refers to the discrepancy between work-related knowledge and the opportunities to use this knowledge in interesting and fairly compensated work. His basic argument is that most workers continually learn much more work-related knowledge than they ever have a chance to apply in paid workplaces. Since 1960 the gradual net upgrading of jobs in the US and Canada, has been exceeded by the rapid expansion of the educational qualifications of the workforce. The two most relevant manifestations of underemployment are credential and performance underemployment. For the U.S. and Canada credential underemployment is consistently estimated at around 20% of the employed workforce. Performance underemployment affects between 40 and 60% of the current labour force and has continued to increase during the past 25 years.

Has underemployment become a common problem for industrial market economies? Or are the Canadian and American labour markets exceptions in their matching problems of demand and supply? What is the influence of labour market policy? Against the background of these questions, this paper addresses the underemployment situation in the Netherlands. In the last few years the Dutch *'poldermodel'*[1] has become widely known. The model is repeatedly applauded for its achievements like moderate wage development, extensive schemes of direct job creation, strategic and constructive co-operation between employers, employees and government on the one hand and strong cuts in social security and employment services on the other (Salverda 1997). Although the strong traditional social security system at first led to a relatively large percentage of the Dutch labour population on benefits from the Disablement Act (WAO) or the Sickness Benefits Act (ZW), these problems were to some extent overcome. At the end of the nineties the Dutch economy is in a strong position compared with other countries of the European Community. This is clearly illustrated by a relatively low unemployment rate of 6.4% (against 10.6% for the EU) and a high employment growth rate of 2.9% (EU 0.6%) in 1997. According to these statistics, The Netherlands nearly meets the performance of the American labour market (unemployment 4.9%, employment growth 2.1%).

With regard to the education-jobs gap more similarities with the American labour market seem to be present. Similar to the results of Livingstone's research, many Dutch graduates review their opportunities in the labour market since they are confronted with limited possibilities to acquire the occupation for which they are basically trained. This is illustrated by high school graduates working as cashiers in a supermarket, historians working as telephone operators, trained psychologists working as kindergarten nannies and so on. In a way, this phenomenon is not entirely new. Tensions in the Dutch labour market during the period before the Second World War saw engineers working as ticket collectors on tramcars. One could argue that these phenomena are just examples of short-term unemployment of young people at the beginning of their occupational careers. However, both researchers and policymakers worry continuously about the structural inefficiencies of the Dutch labour market. Research by Huijgen (1989) showed the existence and growth of an education-jobs gap on the Dutch labour market during the period 1960-1985. Ever since, scholars and politicians have analysed and discussed the implications of these results (de Graaf 1996). The common belief seems to be that the Dutch labour market performs well in times of economic expansion but fails as a perfect marketplace. Major problems such as underemployment and displacement especially became clear in times of economic downturn and unemployment (e.g. the mid eighties, see Dagevos, Van der Laan, Veenman 1997).

In this paper the underemployment problem of the Dutch workforce is described by extending the earlier mentioned research of Huijgen (1989). His analysis of underemployment in The Netherlands is limited to the period 1977-1985 and has not been updated since. Our analysis covers the period 1977-1995. For this period, we compare the Dutch results with other international figures on underemployment. We also compare the results of different methods of measuring underemployment. Based

on these descriptions, two possible mechanisms behind the growth of underemployment are addressed. First, from a *life course perspective,* differences between men and women and between persons early and late in their occupational careers are analysed. Second, from a *selection perspective,* underemployment is related to the educational specialisation of employees. Both perspectives are aimed at further specifing and localising the underemployment problem in The Netherlands. By doing so, possible policy recommendations, which are presented at the end of the paper, can be derived more specifically.

2. Underemployment and the skill structure of the Dutch labour market, 1977-1995

2.1 The EBB Survey

This paper is based on analysis of the largest ongoing labour market survey in the Netherlands, the 'Enquête Beroepsbevolking' (EBB). The survey is held monthly using a representative sample of the Dutch population and can be considered the main statistical source for labour market research and policy. The EBB survey started in 1987 as a successor to the 'Arbeidskrachtentellingen' (AKT) which was the most important labour market survey in the Netherlands between 1977 and 1985. Both surveys were held under the responsibility of the Dutch Central Bureau of Statistics. Since the content of the questionnaire and the method of interviewing have changed from the AKT to the EBB-survey, some interpretation problems must be kept in mind when comparing statistics over the period 1977-1995, as we will show in the next sections.

2.2 Employment and education trends in the Dutch labour market

To start a discussion on the education-jobs gap two trends must be described on a structural level. First we present the trend in average skill level of Dutch employees between 1977 and 1995. As mentioned in the introduction, we apply Huijgen's measurement of the technical skills required for job task performance. These skill levels are indicated by training time, autonomy within the job and the amount of theoretical or practical schooling required to perform the task adequately. Seven levels are distinguished, ranging from unskilled work (level 1) to specialised work at an academic level (level 7). Applying this coding scheme to the occupations of respondents in the different labour market surveys as described above (AKT 1977-1985, EBB 1987-1995), we describe the distribution of the Dutch labour force over these seven skill levels for a period of 24 years.

By using Huijgen's coding scheme, which was developed in 1977, we assume that his skill classification is applicable for occupations filled by employees who were surveyed in 1985 and 1995. It is not unlikely that the required skills of occupations change over time, for example due to technological innovations. If the content and level of occupational tasks change over time, this implies that a certain occupation classified in 1977 might be classified on a lower or higher skill level in 1995. We

checked the validity of Huijgen's measurement by comparing it with a more recent skill classification of occupations developed by the Dutch Central Bureau of Statistics in 1992 (CBS 1992). It appeared that the results based on these two different classification schemes strongly resemble each other, so we have no reason to change Huijgen's scheme before applying it to our more recent labour survey data.

In the following table we present the qualitative structure of employment in The Netherlands since 1977, measured using Huijgen's skill classification. Changes in this skill distribution of occupations can be described in terms of downgrading, upgrading and polarisation. Downgrading involves a relative growth in the proportion of jobs at lower skill levels and upgrading refers to an expanding share of higher-level jobs. In polarisation, the proportion of jobs at both lower and higher skill levels expands, while that of middle-ranked jobs shrinks.

Table 1. The employment structure in The Netherlands by skill level, 1977-1995 (percentages)

Skill level	1977	1985	1990	1995
1	8.4	8.7	8.2	7.9
2	28.0	20.4	19.7	19.8
3	20.1	21.6	16.6	15.0
4	18.9	19.7	18.6	19.8
5	12.0	13.5	15.0	14.2
6	8.7	10.0	15.7	16.4
7	3.9	6.1	6.1	6.8
Numbers (x 1,000)	4,087	4,374	4,947	5,155
Mean	3.44	3.62	3.84	3.89

Table 1 illustrates that from 1977 to 1995 the average skill level of occupations in The Netherlands has increased from 3.44 in 1977 to 3.89 in 1995. This is due to the fact that the number of occupations on level 5, 6 and 7 rose substantially. Contrary to the expectation that the number of unskilled jobs (level 1) has diminished due to automation processes ('job killing'), the share of the jobs on level 1 and 2 stayed constant over time (compare De Beer, 1996). For the late sixties Huijgen found that the skill structure in The Netherlands had polarised (Conen and Huijgen 1980). After 1977 this was no longer the case. In general, we recognise a net upgrading trend. Since 1985 this trend continued but at a relatively slow pace.

Table 2 illustrates how the educational level of the Dutch labour force has developed

within the same period. The level of education achieved by employees is classified into five categories: lower (elementary training), extended lower (secondary general training and first level of vocational training), intermediate (advanced secondary training, high school and second level of vocational training), higher (higher vocational training) and extended higher (academic training).

Table 2. Educational level of Dutch employees, 1977-1995 (percentages)

Educational level	1977	1985	1990	1995
Lower	29.6	13.4	11.0	8.3
Extended lower	36.4	28.3	25.2	21.8
Intermediate	21.7	39.0	41.4	44.2
Higher	9.0	14.3	15.6	17.9
Extended higher	3.4	4.9	6.8	7.9
Numbers (x 1,000)	4,084	4,300	4,941	5,145
Mean	2.20	2.69	2.82	2.95

This table shows a steady increase of the average educational level of the Dutch labour force. By coding the five educational categories on a scale from 1 to 5, we measure an overall increase in average educational level from 2.20 in 1977 to 2.95 in 1995 on an interval scale. In particular, the number of employees with lower and extended lower education has diminished, whereas the share of employees with intermediate and higher education has increased strongly. The conclusion is that, like other populations of the advanced industrial societies the Dutch workforce has achieved unprecedented levels of formal credentials (see also Van der Ploeg 1993).

Since both the average skill level of occupations and the average educational level of employees have risen, one could easily conclude that the labour market has functioned well. The question is, however, whether both trends have kept the same pace. Although level of education and skill level both can be considered ordinal scales they are measured in different units. Therefore it would take some assumptions to treat them as interval variables measured in the same units, but by indexing both trends (1977=100), we can compare the speed of both developments (Table 3).

Table 3. Mean educational level of Dutch employees and skill levels of occupations, 1977-1995 (index 1977=100)

	1977	1985	1990	1995
Mean skill level of occupations	100	105.2	111.6	113.1
Mean educational level of employees	100	122.3	128.2	134.1
Difference	0	17.1	16.6	21.0

Table 3 clearly illustrates that the increase of the average skill level is relatively slow in comparison with the increase of the average educational level. This results in a widening gap between the achieved average skill level of employees and the required average skill level of occupations. The upgrading of the employment structure remains insufficient to accommodate the rising educational level of the working population. This manifests itself in a further deterioration of the opportunity structure. We conclude that between 1977 and 1995 the efficiency of the allocation process in the Dutch labour market has worsened. Equal to developments in the U.S. and Canada, the average skill increase involved appears to have been exceeded by rapid increases in the educational credentials of the workforce (Livingstone 1998).

2.3 The allocation process on a micro level: the misfit between education and occupation

Although the previous analysis seems clear in its conclusion, the question remains whether this proves that the allocation process in the Dutch labour market has worsened over time, since both trends are described separately. It could well be that at *the level of individual employees* the education-jobs gap has not worsened over time. To examine this we have to describe the relationship between the level of education attained and the required skill level of each individual. There are several techniques to do so. In general, a distinction can be made between objective and subjective measurements of underemployment (Hartog & Jonker 1996, Groot & Maassen van den Brink 1996, Groeneveld, 1997).

Subjective measurements are judgements of the match between required and attained qualifications by the employees themselves or others, such as their employers or supervisors. This method is often criticised since its redefines underemployment in terms of personal experiences and therefore ‘unreliable’ or ‘unstable’ estimates of perceptions (Groeneveld 1997). Objective measurement reduces this problem since it is based on the researcher’s definition; based on level of education on the one hand and skill level of occupation on the other, these two variables are matched statistically. This method, of course, has its own problems. Underemployment is reduced to a methodological assignment and the method does not address the possibility that overeducated employees do use their credential surplus and therefore do not experience any problem with their underemployment. This argument is widely

posited in the Dutch literature by, among others, Wielers and Glebbeek (1995). In their decomposition of the rising educational level of the working population, they emphasize that underemployed employees can be more productive in organisations and facilitate innovations in the production process (Bartels and Lichtenberg 1987). However, the labour market survey data used in this paper provide no specific information on productivity or the firm-specific human capital of the interviewed employees. It is therefore difficult to deal with these criticisms, but it remains useful to bear their remarks in mind. In the following, we present the results of three measurements based on the objective approach.

The *first* measurement is based on a basic analysis of the cross tabulation of education by occupation. The strength of the association within this 5x7 table can be considered a measurement of the fit between education and skill level. In choosing between several possible association measures, it seems reasonable to assume that both education and skill level are interval variables. One can argue, however, about the metric characteristic of both variables (Wolbers 1998). It seems tricky to assume that the distances between educational and skill levels are equal. For this reason we computed several different association measures which vary in these assumptions in order to test the robustness of outcomes. We consider low or decreasing associations as proof of the misfit between education and occupation on the labour market. Table 4 illustrates the results.

Table 4. The association between educational and skill level of the Dutch employees according to some measures, 1977-1995

	1977	1985	1990	1995
Pearson's correlation	.62	.64	.63	.61
Spearman correlation	.56	.62	.62	.61
Somers' D (symmetric)	.48	.53	.53	.52
Gamma	.61	.67	.66	.65
Numbers (x 1,000)	4,084	4,302	4,933	5,143

The four different statistical association measures appear to be relatively stable over time. They show a similar trend: a slight increase between 1977 and 1985 followed by stability over the period 1985-1995. Between 1990 and 1995 the coefficients even seem to go down, although this decrease appears to be very small. On the basis of this analysis we conclude that there is no clear trend in the fit between education and occupation between 1977 and 1995. A slight improvement of the match until the mid eighties vanished during the nineties.

Secondly, the allocation process on the labour market is analysed in terms of return to credentials (see also Wolbers 1998). By comparing the average skill level achieved

by employees with different educational levels over time, this trend also indicates the labour market fit. The argument for this method is that a decrease in the average skill level for every educational category can be considered a misfit in terms of underemployment. If employees attain occupations at lower levels than before, their investments in credentials decrease, which indicates the level of underemployment from which they suffer. The development of the average skill level per educational category is shown in Table 5.

Table 5. Mean skill level of occupations by educational level of Dutch employees, 1977-1995

Educational level	1977	1985	1990	1995
Lower	2.47	2.32	2.37	2.31
Extended lower	3.14	2.83	2.87	2.82
Intermediate	3.96	3.74	3.85	3.77
Higher	5.53	5.34	5.39	5.32
Extended higher	6.34	6.19	6.18	6.00
Numbers (x 1,000)	4,084	4,300	4,941	5,145
Mean	3.40	3.64	3.84	3.90

Table 5 shows a remarkable picture: on *every* educational level the average skill level has decreased while the average skill level of the total population has increased over the same period. The fall of this return to credentials is evident at all educational levels and occurred especially between 1977 and 1985. It also appears that the higher the level of education, the stronger the credential inflation. According to this analysis there are clear indications that the misfit in the Dutch labour market has increased over time.

Third and last, a more direct way to define the fit of the market in terms of underemployment is by actually computing the percentage of employees who work below their achieved level of education. Of course, the crux in this measurement is the specification of what is defined as *'below'*. In other words: at which skill level, relative to level of education, are employees defined as underemployed? As with the first technique, the starting point to apply this measurement is the cross tabulation of skill level (in seven categories) by educational level (in five categories). Within this structure, it is difficult to define both the fit and misfit since there is no clear diagonal in a 7x5 table. Huijgen (1989) tackled this problem by simply defining a diagonal within this table and thus drawing a border between the underemployed and those who are not. Table 6 represents his conversion scheme.

Table 6. The underemployment model of Huijgen (1989)

Educational level Skill level	Lower	Extend. Lower	Inter-mediate	Higher	Extended higher
1	0	2	2	2	2
2	0	1	2	2	2
3	-1	0	1	2	2
4	-2	-1	0	1	2
5	-2	-2	-1	0	1
6	-2	-2	-2	-1	0
7	-2	-2	-2	-2	0

According to Huijgen's definition, employees are underemployed at the cells above the diagonal line within the cross tabulation. Within this category, a distinction is made between those who are underemployed by one level (code '1') and those who are underemployed by two levels or more (code '2'). Employees in the cells on the diagonal (code '0') are considered to be matched. Similar to the measurement of underemployment one can compute the reverse, overemployment, in the same way. Those workers occupying jobs one skill level above their educational level are coded as overemployed (code '-1') and employees who occupy jobs two skill levels above their qualification level are coded '-2'.

Applying the conversion scheme as presented above, the following trends in the Dutch labour market between 1977 and 1995 can be presented (Table 7).

Table 7. Under- and overemployment of Dutch employees, Huijgen's definition, 1977-1995 (percentages)

	1977	1985	1990	1995
Underemployed				
By one level or more	35.4	38.6	36.3	37.7
By two levels or more	9.7	14.0	15.4	17.4
Overemployed				
By one level or more	38.7	30.8	34.9	33.0
By two levels or more	11.2	10.3	12.3	12.0
Matched	25.9	30.5	28.9	29.3
Numbers (x 1,000)	4,084	4,300	4,941	5,145

Table 7 shows that the percentage of underemployed by one level or more increased from 35.4% to 37.7% between 1977 and 1995. However, this is not a clear linear trend. Underemployment rose between 1977 and 1985, but in 1990 it was below the level of 1985. Between 1990 and 1995 the percentage of underemployed employees increased again, but at a relatively slower pace. If we focus on those who work two or more levels below their level of education, the percentages are, of course, lower, but this group has grown steadily over time. Overemployment appears to be of equal size as underemployment. Over 30% of the Dutch labour force occupied jobs above their formal educational level in 1995. There is no clear upward or downward trend in overemployment, however, in contrast with the growth of underemployment over time.

2.4 Conclusions

Two out of three different measurements show that the allocation process on the Dutch labour market has worsened in terms of underemployment over time. During the period 1977-1995, the association between employees' level of education and their jobs remained stable. At the same time, the employees' return to credentials has diminished for every educational level and an increasing share of employees can be considered underemployed. This has happened in two waves: a strong increase in credential inflation and underemployment between 1977 and 1985 and a moderate increase in both between 1990 and 1995. We have to recall that between 1985 and 1990 the change of survey (from 'AKT' to 'EBB') may have partly caused this break.

If we compare our conclusions on underemployment with other methods to measure

this phenomenon, the following can be stated. Overall, we conclude that between 17% and 38% of the Dutch labour force was underemployed in 1995, depending on the interpretation of differences between levels of education and skills. If we compare this with results from subjective, self-reporting methods (as is applied in, for instance, the OSA Dutch Labour Panel Data), 35% of the Dutch labour force was underemployed in 1996 (OSA 1997)[2]. These differences are thus not as large as one would expect.

With regard to results of similar research in other countries, several comparisons can be made. First we recall Livingstone concluding that the level of performance underemployment in both the U.S. and Ontario (Canada) in 1996 varied between 40 and 60 percent (Livingstone 1998: 82). These figures are based on the same 'objective' methods as used in our analysis. For West Germany, Büchel & Weißhuhn (1997) report that 20% of all employed persons are underemployed (using objective measurements). This proportion remained stable between 1984 and 1993. We conclude that underemployment in The Netherlands is lower compared with the U.S. and Canada and is of at least equal level in comparison with Germany.

3. Localising the misfits on the Dutch labour market

The previous conclusions strongly suggest the need for further analysis of underemployment on the Dutch labour market. In this section we address the questions: who are the underemployed and where do we find them? To answer these questions we first approach the problem from a *life course perspective*. In doing so, we describe some general social-cultural trends in Dutch society and their implications for the composition of the labour force. Along this line, we perform breakdown analysis of underemployment in relation to gender and age. Secondly, the problem is analysed from a *selection perspective*. Here we refer to labour economic theory on personnel selection and labour market segmentation. This elaboration results in a breakdown analysis of underemployment in relation to educational specialisation. In both approaches, return to credentials (the decrease of average skill level per educational level) and the percentage of underemployed are used as the main indicators of underemployment.

3.1 The life course perspective: underemployment by age and gender

During the period between 1977 and 1995 the size and composition of the Dutch labour force changed considerably. Between 1975 and 1985, an economic crisis resulted in a diminishing labour force and growing unemployment rates. After 1985, this negative trend reversed: the active labour force grew from 48% to 63% of the total population aged 15-64. Unemployment dropped from 10% to 8.1%. In particular the women's share in the labour force expanded from 34% to 49% between 1985 and 1995 (SCP 1996:79). Clearly, the traditional division of labour within households (men doing paid work, women involved in domestic and unpaid work) has eroded. As the average educational level continuously rose in the last two

decades (see section 2.2) and youngsters spent more years at school, the average age of the labour force increased. In 1975 the average age of Dutch employees was 35.6; in 1995, 37.1 years. In particular, the percentage of 15-24 year-old men active in the labour market dropped: from 52.7% in 1975 to 40.5% in 1995. This ageing of the labour force would have been even more significant if the share of 55-64 year-old men in the labour force had not decreased at the same time (from 75.1% to 55.4%) through early retirement. At the same time, 25-49 year-old women quite massively (re)entered the Dutch labour market as their share grew from 21.6% to 53.8% between 1975 and 1995 (SCP 1996: 101).

On the basis of these trends, we argue that it is useful to specify the analyses on the return to credentials for gender and age. As a basis for hypothesis, we assume that employees are driven by ambition to reach the highest possible skill level and strive for an optimal return on their investment in education (Becker 1964). Therefore, employees are assumed to avoid underemployment as much as possible since this causes frustration, motivation losses (Burris 1983) and even work dissatisfaction (Mottaz 1984, Livingstone 1998, Steijn and De Witte 1998). Employees realize that jobs are, like any social status, positional goods: the higher the skill level, the stronger the competition (Hirsch, 1977). It is clear that not everyone can become CEO of a multinational corporation, since there are only as many top positions as the hierarchy defines. This is true for both men and women, for those just entering the labour market and those with much working experience.

In this section we will *first* analyse the differences between the labour participation of women and men in the labour market. Much research indicates that women are less ambitious in achieving high skill levels since they have to choose between motherhood and a professional career. Therefore women easily accept jobs below their level of education when they enter or re-enter the labour market (Van der Lippe & van Doorne Huiskes 1995) in comparison with men. Another argument is that women suffer more from underemployment because they have to compete for occupations which might traditionally be dominated by male organisation cultures (Reskin & Roos 1990). Although the labour participation of women has increased (and so has their level of education), we expect that the underutilisation of women is larger in comparison with men. In terms of diminishing skill levels as a main indicator of underemployment (see previous section), female credentials have become more devalued than male credentials. Our first hypothesis can therefore be formulated as:

Hypothesis 1:
In terms of return to credentials and given their level of education, women suffer more from credential inflation than men.

The next table provides the results for testing hypothesis 1 on gender differences.

Table 8. Average skill level and underemployment by educational level and gender, 1977-1995

		Mean skill level		
Educational level	Gender	1977	1995	1977-1995
Lower	Women	2.15	2.09	-0.06
	Men	2.45	2.40	-0.05
Extended lower	Women	2.78	2.62	-0.16
	Men	3.33	2.93	-0.40
Intermediate	Women	4.03	3.64	-0.39
	Men	4.38	3.86	-0.52
Higher	Women	5.64	5.17	-0.47
	Men	5.76	5.44	-0.32
Extended higher	Women	6.58	5.94	-0.64
	Men	6.51	6.03	-0.48
Total	Women	3.23	3.78	0.55
	Men	3.57	3.96	0.39

In both years, 1977 and 1995, and at all educational levels, women achieved lower skill levels in comparison with men. During the period 1977-1995, however, the average skill level of women's occupations increased faster in comparison with men (+0.55 versus +0.39). In this respect, women made up much ground on the Dutch labour market, as they also had regarding their educational career.

To test the hypothesis on gender differences in underemployment, the diminishing return to credentials is of importance. Based on the '1977-1995' column, two conclusions can be drawn. First, the decrease mean skill level is particularly large for women with higher and extended higher levels of education (-0.47 and -0.64). Second, on the intermediate and extended lower levels of education, men have suffered more from credential inflation. To conclude, our hypothesis is only partly supported by the breakdown analysis. It appears that the progress of women on the labour market follows a 'bottom up' pattern. Between 1977 and 1995 women merely caught up with men, especially at the lower levels of the labour market. If their levels of education and skills develop at the same pace, there are chances that their underemployment in the upper part of the labour market will decrease (in comparison with men) too.

The *second* hypothesis we address is based on the idea that young people in particular, who are just joining the labour process, start working below their level of education, presuming that they will catch up in job level later on in their life. In several studies this is named the 'waiting room effect'. According to this effect underemployment increases over time for two reasons. First, young employees postpone their entrance into the labour market because they stay longer within the education system (Dekker et al. 1992). Secondly, employers are able to select young over-educated employees as compensation for their lack of job experience (Groot & Maasen Van der Brink 1996). Although early retirement has provided better opportunities for new generations which enter the labour market, our expectation is that the underemployment problem of employees with little job experience is still prominent. In terms of return on education, younger participants have suffered more from credential inflation in comparison with those with more working experience on the labour market. Since these age effects are largely correlated with gender, as was shown by the previous analysis, the following hypothesis is deduced:

Hypothesis 2:
Given their level of education and gender, young employees suffer more from credential inflation than older participants in the labour market.

Table 9 allows us to specify whether the diminishing return to credentials (given gender and educational level) is different for those who entered the labour market (young people, age 15-24) and those who are more or less settled in the labour market (age 25-39 and 40-64).

Table 9 Mean skill level by educational level, gender and age, 1977-1995

			Mean skill level		
Educational level	Gender	Age	1977	1995	1977-1995
Lower	Women	15-24	2.19	2.14	-0.05
		25-39	2.13	1.98	-0.15
		40-64	2.15	2.13	-0.02
	Men	15-24	2.40	2.23	-0.17
		25-39	2.44	2.26	-0.18
		40-64	2.49	2.51	0.02
Extended lower	Women	15-24	2.70	2.33	-0.37
		25-39	2.85	2.65	-0.20
		40-64	2.88	2.74	-0.14
	Men	15-24	3.04	2.62	-0.42
		25-39	3.68	2.80	-0.88
		40-64	3.49	3.24	-0.25
Intermediate	Women	15-24	3.80	3.25	-0.55
		25-39	4.23	3.72	-0.51
		40-64	4.27	3.77	-0.50
	Men	15-24	3.73	3.11	-0.62
		25-39	5.44	3.78	-1.66
		40-64	4.61	4.16	-0.45
Higher	Women	15-24	5.53	4.46	-1.07
		25-39	5.66	5.10	-0.56
		40-64	5.71	5.44	-0.27
	Men	15-24	5.62	4.26	-1.36
		25-39	5.79	5.27	-0.52
		40-64	5.87	5.67	-0.20
Extended higher	Women	15-24		.	.
		25-39	6.61	5.83	-0.78
		40-64	6.64	6.23	-0.41
	Men	15-24	.	.	.
		25-39	6.55	5.97	-0.71
		40-64	6.48	6.26	-0.22

Except for some cases, mean skill level increases with age at every level of education, for both women and men. This confirms the base line argument of the 'waiting room effect'. These differences between the youngest (15-24) and oldest (40-64) age groups are somewhat larger in 1995 and more prominent at the intermediate and higher levels of education. The age group differences do not vary systematically by gender.

With regard to the loss of mean skill levels between 1977 and 1995 (last column of Table 9), it is once again confirmed that credential inflation appears at all levels of education and is the case for men, women and different age groups (all difference scores are negative). The youngest age group (15-24) has suffered to a relatively large extent from credential inflation, as was predicted by our hypothesis 2, but not in all cases, however. At the lower level of education (women), the extended lower level of education (men) and the intermediate level of education (women), the middle-aged group (25-39) dealt with the relatively largest decrease of mean skill levels. In all cases, however, the youngest employees have suffered more from credential inflation in comparison with the oldest employees. Remarkable are the results for the 25-39 and 15-24-year-old men, who lost over 1.6 and 1.3 mean job level in 18 years. It appears that at the two highest educational levels the age differentiation is clearer. In general these results confirm our hypothesis 2: those who enter the labour market (the young people) suffer more from underemployment (credential inflation) in comparison with those who have more labour market experience.

3.2 The selection perspective: underemployment by educational specialisation

As Dutch society changed from an industrial towards a post-industrial society, employment in Dutch industry decreased and the number of jobs in the service sector expanded strongly. At the same time many modern approaches to Human Resource Management appeared in Dutch organisations. Teamwork, employability, empowerment, business process redesign, management development, learning organisations, are standard vocabulary of the modern personnel manager today. The question, however, is whether these trends have any impact on the actual allocation process on the Dutch labour market at a macro level. For a long time, the mechanism of vacancy competition appeared to be the main driving force on the Dutch labour market (Wielers and Glebbeek 1995).

The implication of vacancy competition yields that the core segment of the labour market is prominently occupied by the growing supply of highly-educated employees (young academics). Because of a considerably sharpened selection system this has resulted in higher chances of displacement for the less educated (Wolbers 1998). The main idea of vacancy competition was prominently elaborated by Thurow (1975) and can be considered one of the most important contributions to the theoretical study of employee selection. In his approach the number of jobs is given and it is assumed that employees primarily compete to obtain the attractive jobs (see also previous section 3.1).

As a result, employees line up in a hypothetical labour queue of which the front is formed by the best educated. At the end of the queue employees are gathered who are the least eligible for occupations at a certain skill level (Ridder and Van Ours 1995). Personnel managers react to this by ordering this queue according to the expected productivity of the potential employees. The expected productivity, then, is mainly indicated by the employee's level of education (Arrow 1973, Bowman 1987, Moelker 1992). Therefore, employees drive themselves to ever-higher educational levels in order to obtain an optimal relative position in the selection process for these jobs. In combination with the selection system of personnel managers, less educated workers are crowded out of the less skilled jobs or are even elbowed out of employment and frequently become jobless.

In search of further understanding of underemployment in the Dutch labour market, this section takes the differences between labour market segments into account. It is known from several studies that the degree of vacancy competition differs among sectors and industries (Dickens and Lang 1988, de Grip and Dekker 1993, Allen 1997). It goes without saying that both unemployment and vacancy trends in labour market sectors depend on demand and supply side developments. On the supply side we see that some courses of study are more popular than others. In the Netherlands, general training is less attended than commercial schooling, for instance (Webbink, van der Vegt and Bon 1995). On the demand side of the labour market, employment varies within and between economic sectors over time, due to market fluctuations, technological developments and other processes of restructuring (Teulings 1990, Teulings and Webbink 1990).

In order to distinguish between labour market segments our data are limited because the EBB-survey is based on individual respondents. As the number of respondents who are employed in a certain labour market sector can be very limited, it is problematic to use these individuals as representative for this sector. Moreover, employees can be employed in very different jobs (segments) within the same sector (i.e. an accountant and a technician within the manufacturing sector). Taking these arguments into account, we concentrated our analysis on educational specialisation of employees as an indicator of labour market segmentation. Specialisation refers to the type of job for which an employee is trained, which can be considered a labour segment indicator that is more stable during one's career than the economic sector in which the individual is employed. In order to limit the number of categories, three types of specialisation are distinguished: technical, commercial and care training. To formulate expectations on the relationship between underemployment (i.e. credential inflation) and labour market segmentation (i.e. educational specialisation), we use additional information about the labour market positions of technical, commercial and care training in the Netherlands over the period 1977-1995.
As stated before, strong service and commercially-oriented market developments in both profit and non-profit organisations have directly influenced the Dutch labour market. As a result, the need for commercially trained employees has grown in general and at high skill levels in particular. The technical and care segments increasingly suffer from this labour market shift and deal with diminishing motivation on the part of young people to specialise in these 'traditional' sectors.

To summarise, labour market conditions for those with commercial training are better in comparison with those with a technical background or a background in care. On the basis of these assumptions and observations, we propose the following hypothesis to be tested:

Hypothesis 3:
Given their level of education and their gender, employees with a technical or care specialisation have suffered more from credential inflation than those who completed a commercial course of study.

As in the previous analysis, both educational level and gender are taken into account. Table 10 thus presents the trends in credential inflation by educational level, gender and educational specialisation. The lower level of education is omitted from the table since this group is too small to break down into educational specialisation.

Table 10. Mean skill level by educational level, gender and educational specialization, 1977-1995

Educational level	Gender	Educational specialisation	Mean skill level		
			1977	1995	1977-1995
Extended lower	Women	Technical	2.63	2.27	-0.36
		Commercial	2.92	2.67	-0.25
		Care	2.56	2.32	-0.24
	Men	Technical	3.20	2.88	-0.32
		Commercial	3.33	3.11	-0.22
		Care	3.35	2.76	-0.59
Intermediate	Women	Technical	3.56	3.13	-0.43
		Commercial	3.52	3.47	-0.05
		Care	4.20	3.83	-0.37
	Men	Technical	3.92	3.74	-0.18
		Commercial	3.89	4.07	0.18
		Care	4.71	3.87	-0.84
Higher	Women	Technical	4.58	5.08	0.50
		Commercial	4.41	4.49	0.08
		Care	5.66	5.38	-0.28
	Men	Technical	5.27	5.36	0.09
		Commercial	5.05	5.16	0.11
		Care	5.85	5.68	-0.17
Extended higher	Women	Technical	6.65	6.05	-0.60
		Commercial	6.38	5.87	-0.51
		Care	6.48	5.95	-0.53
	Men	Technical	6.51	6.18	-0.33
		Commercial	6.08	5.75	-0.33
		Care	6.36	6.13	-0.23

Differences between courses of study are spread over all levels of education and for both men and women. At some educational levels (extended lower), the mean skill levels of commercially trained employees is the highest, at others (intermediate and higher), employees with a background in health care achieved relatively high levels of skill. Among the extended higher educated, those with a technical specialisation reached the highest skill level in their occupation.

Within each combination of educational level and gender, hypothesis 3 predicted the commercially educated to have the smallest decrease of mean skill level in comparison with those with a technical or care specialisation. From Table 10 it appears that this is indeed the case. However, there are a few exceptions to be noted. At the higher educational level, the mean skill level of both the technically and commercially trained increased between 1977 and 1995 instead of decreased. This increase was strongest for the technically (female) and commercially (male) educated.

5. Summary and policy implications

In this paper we described the underemployment situation in the Netherlands during the period 1977-1995. We conclude as several analysts have reported for Canada and the US before, that there is a prominent level of underutilisation of knowledge and skills on the current Dutch labour market. About one third of the labour force can be defined as underemployed. This proportion is stable over time. Although employees in The Netherlands reached higher skill levels on average in 1995 in comparison with 1977, their mean skill level *relative* to their level of education decreased. At all educational levels the Dutch labour force suffered from credential inflation during the period 1977-1995.

The decrease of (relative) mean skill levels over time has especially hit women with high levels of education. At the lower levels of education, men have suffered most from credential inflation. Broken down for age, the waiting room hypothesis is confirmed by our analysis: given their level of education and gender, young people in the Dutch labour market experience stronger credential inflation in comparison with older employees. Similar analysis for categories of educational specialisation shows that those with a commercial background have relatively good labour market positions. In contrast, employees with a technical or care specialisation have suffered most from credential inflation, given their gender and level of education.

These conclusions yield implications with regard to labour market policy. Underemployment, as an important indicator of allocation problems in the Dutch labour market, is still prominent in the nineties in spite of the much cheered ‘poldermodel’. Although it is expected that the latter group will further decrease in size, the number of young people and highly educated women will probably increase in the future. For the next millennium, this will challenge the Dutch ‘poldermodel’ in preventing a widening of the education-jobs gap.

In spite of much rhetoric about the skill deficiencies of the current workforce, we see little evidence of any general or persistent technical skill deficit among employed workers (Asselberghs et al. 1998, Livingstone 1998). In our opinion it is not the supply of credentials that is the basic problem but the supply of highly skilled occupations. From a human resource perspective it appears to be the inability of market economies to generate enough skilled and rewarding jobs to accommodate the rising educational levels of workers (Lowe 1998). Until now, policymakers have reacted to this by fiscally stimulating firms to create low-level jobs for the long-term unemployed (e.g. 'Melkert' jobs, named after the Dutch minister of social affairs). One may wonder if this offers only a partial solution. Our study clearly indicates that the main difficulty is that more and more jobs are occupied by employees who are underemployed. This blocks the path of less educated workers to regular employment. Creating low-level jobs in this context is just treatment of symptoms. It does not offer a structural solution to the education-jobs gap (Kasarda 1990). Employment policies aimed at improving the education-jobs gap should focus on the upper end of the labour market. Our argument is that creating high-level jobs will decrease the underemployment problem of highly-qualified employees and, as a result, this will give relief to the problem of underemployment and downward displacement at the lower end of the labour market.

Another implication from our underemployment analysis could be that it is a societal waste to invest in collective training and educational programs. This corresponds with some proposals to reduce participation in higher education. In our opinion, such a view of the societal function of education is rather limited. Apart from the cultural value of education we argue that a highly skilled labour force is an important asset of countries, nowadays, coping with severe international competition. In the context of the international division of labour a highly skilled labour force provides important human capital and will result in potential comparative advantages. Thus, if we analyse the problem from a macroeconomic perspective, we come to the same conclusion as stated before. At the moment, creating highly skilled jobs appears to be the most promising policy in order to narrow the education-jobs gap in the Dutch labour market.

We conclude with some recommendations. In our view two issues are important. First, policy and management should pay attention to the demand side of the labour market. High-level jobs are needed in order to use and develop highly skilled and talented employees. This has implications for both the workplace and organisational design in all types of industries. Secondly, it is of vital importance that employers avoid placing highly skilled individuals in standard or routine jobs that are unlikely to challenge their potential and learning. Both motivation and satisfaction of employees are key assets of efficient, innovative and productive organisations (Hackman and Oldham 1980, Schouteten 1998). The often one-sided demand approach of current management often leaves out this basic knowledge. Congruent human resources management gives room to high quality skills and consequently preserves the match between jobs and the credentials of employees.

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Notes

[1] The Dutch word '*polder*' refers to the land the Dutch have reclaimed from the '*IJsselmeer*' lake.

[2] Those who are underqualified answered 'yes' to the question: "Are you currently employed on a lower level in comparison with your level of education?".